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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,534	06/24/2005	Minoru Umemoto	04632.0066	3553
22852	7590	03/14/2008		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER BONK, TERESA	
			ART UNIT	PAPER NUMBER
			3725	
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			03/14/2008 PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,534

Applicant(s)

UMEMOTO ET AL.

Examiner

TERESA BONK

Art Unit

3725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6 and 7 is/are rejected.
- 7) ☒ Claim(s) 3 and 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
- Paper No(s)/Mail Date 10/12/05 & 1/25/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

Claims 3-5 and 7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and cannot depend from other multiple dependent claims. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim 4 is objected to because of the following informalities: The word “carried” is misspelled on line 3 of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is insufficient antecedent basis for the limitation “the overlapped areas” and “the sum of the contact surfaces.”

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu G. et al. (as cited on the IDS filed 10/12/2005) in view of Ishino et al. (US Patent 5,205,145). Liu G. et al. discloses a method for fining a metal surface, the metal product having surfaces hardened; comprising a process for forming crystal grains having sizes less than $1\mu\text{m}$ (page 1792) at the surface of a metal product by means of peening shots to the surface. The shots are made from an undisclosed material with a diameter of $8000\mu\text{m}$ (8mm; page 1791). The reference does not disclose a temperature at which the peening process is completed in.

Liu G. et al. discloses the invention substantially as claimed except for forming the crystal grains by means of a peening process while a power per unit area of the surface is controlled at a predetermined value. Ishino et al. discloses a method of shot peening a metal product while a power per unit of area of the surface is controlled at a predetermined value (shot pressure of $5/7\text{ kgf/cm}^2$, compressive residual stress 20 kgf/mm^2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a power per unit area of the surface controlled at a predetermined value because combining prior art elements according to known methods yields predictable results.

Liu G. et al. discloses the invention substantially as claimed except for the particular material and diameter of the shots. Ishino et al. discloses a method of shot peening a metal product using steel shots (Column 7, line 32) of 44 μm and 600 μm diameters (Column 6, lines 8-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the particularly claimed material and diameter since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability and the smaller diameter shots provide for "improved mechanical characteristics," Column 4, lines 44-47.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu G. et al. in view of Ishino et al. in further view of Shirai et al. (US Patent 5,302,218). The combination of Liu G. et al. and Ishino et al. disclose the invention substantially as claimed except for wherein the process for peening shots to the surface is carried out while the temperature of the metal surface is controlled to be at room temperature. Shirai et al. discloses shot peening a metal product's surface at room temperature, Column 1, lines 27-30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the peening process at the particularly claimed temperature because doing so is considered common knowledge or "conventional," Column 1, line 27.

Allowable Subject Matter

Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERESA BONK whose telephone number is 571-272-1901. The examiner can normally be reached on M-F 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on 571-272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Derris H Banks/
Supervisory Patent Examiner, Art Unit 3725

Teresa M. Bonk
Examiner
Art Unit 3725